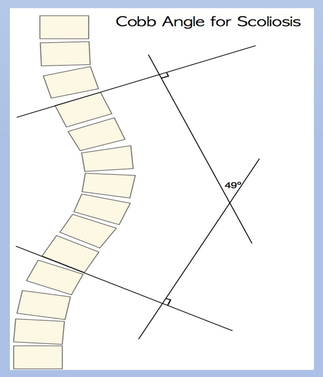
# Treatment of Adult Scoliosis and Chronic Low Back Pain with Land and Aquatic Based Physical Therapy: A Case Report

**Thomas Kent, BS**

**Department of Physical Therapy - University of New England, Portland ME**

## Background

- Scoliosis is defined as a spinal angulation of greater than 10 degrees in the frontal plane with spinal torsion[1]
- Incidence of idiopathic scoliosis: 2- 3%[2]
- Symptoms associated with scoliosis include pulmonary dysfunction and spinal pain
- Cobb angle greater than 25° = Physical therapy to stop progression of curve[2]
- Cobb angle greater than 45° = Surgical intervention[3]




https://scoliosis3dc.com/wp-content/uploads/2010/01/Cobb-Angle-image-Scoliosis-3DC-jpg.jpg

## Purpose

The purpose of this case report was to evaluate the effects of an aquatic and land based exercise program on an adult that presented with severe, untreated scoliosis.

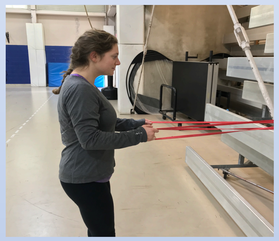
## Case Description

- 55 year old female
- Chief complaint: Constant low back pain that limits her ability to work and sleep
- Medical Diagnosis: Scoliosis with subluxation of L3 on L4

## Interventions

**Seated Hip Flexion:**

- Cues on transverse abdominus (TA) activation
- 3 sets of 10 rep



**Standing Row:**

- Cues on TA activation
- Red resistance band
- 3 sets of 10 reps

**Hamstring Stretch**

- Cues on proper back alignment
- 2 sets of 20 second holds



http://completept.com/wp-content/uploads/2015/07/speed-walk.jpg

**Deep Water Hanging:**

- 3 sets of 5 minutes



http://completept.com/wp-content/uploads/2015/07/deep_run2.jpg

**Deep End Hip Flexion:**

- 2 sets for 3 minutes



http://completept.com/wp-content/uploads/2015/07/powerwalk2.jpg

**Deep Water Walking:**

- 2 sets for 3 minutes

## Outcomes

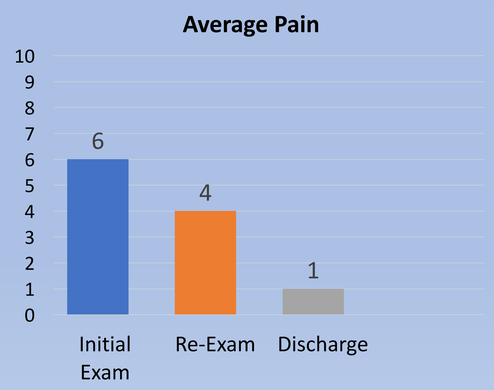



Figure 1: Average pain reported using a numeric pain rating scale.

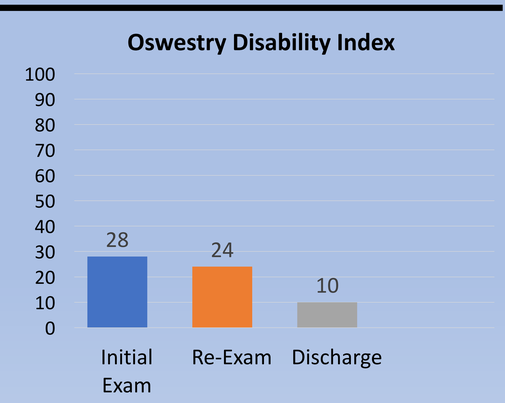



Figure 2: Scores on ODI demonstrating an increase in function related to low back pain.

## Discussion

- This case report demonstrated a possible intervention protocol to manage an adult patient with pain secondary to severe scoliosis.
- Interventions were chosen based on current literature and practitioner experience. These interventions consisted of aquatic and land based exercises in conjunction with soft tissue manipulation of spinal musculature.
- Results from this case report demonstrated that physical therapy intervention may decrease low back pain and improve function in patients with severe scoliosis.
- Although this intervention program was successful for this patient, results may vary with other patients.
- Further research is required to establish an intervention protocol for this patient population.

## Acknowledgements

The Author acknowledges Michael Fillyaw, PT, MS, for his assistance with case report conceptualization, Brooks Mullen PT, for assistance and supervision with the patient's care during the clinical practicum, and the patient for participating in this Case Report.

## References

1. Janicki JA, Alman B. Scoliosis: Review of diagnosis and treatment. *Paediatr Child Health*. 2007;12(9):771-776. Accessed Jul 16, 2017. doi: 10.1093/pch/12.9.771.
2. Weiss H, Negrini S, Rigo M, et al. Indications for conservative management of scoliosis (guidelines). *Scoliosis*. 2006;1(1):5. doi: 10.1186/1748-7161-1-5.
3. Maruyama T, Takeshita K. Surgical treatment of scoliosis: A review of techniques currently applied. *Scoliosis*. 2008;3(1):6. doi: 10.1186/1748-7161-3-6.